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Enterprise Innovation From Core to Edge

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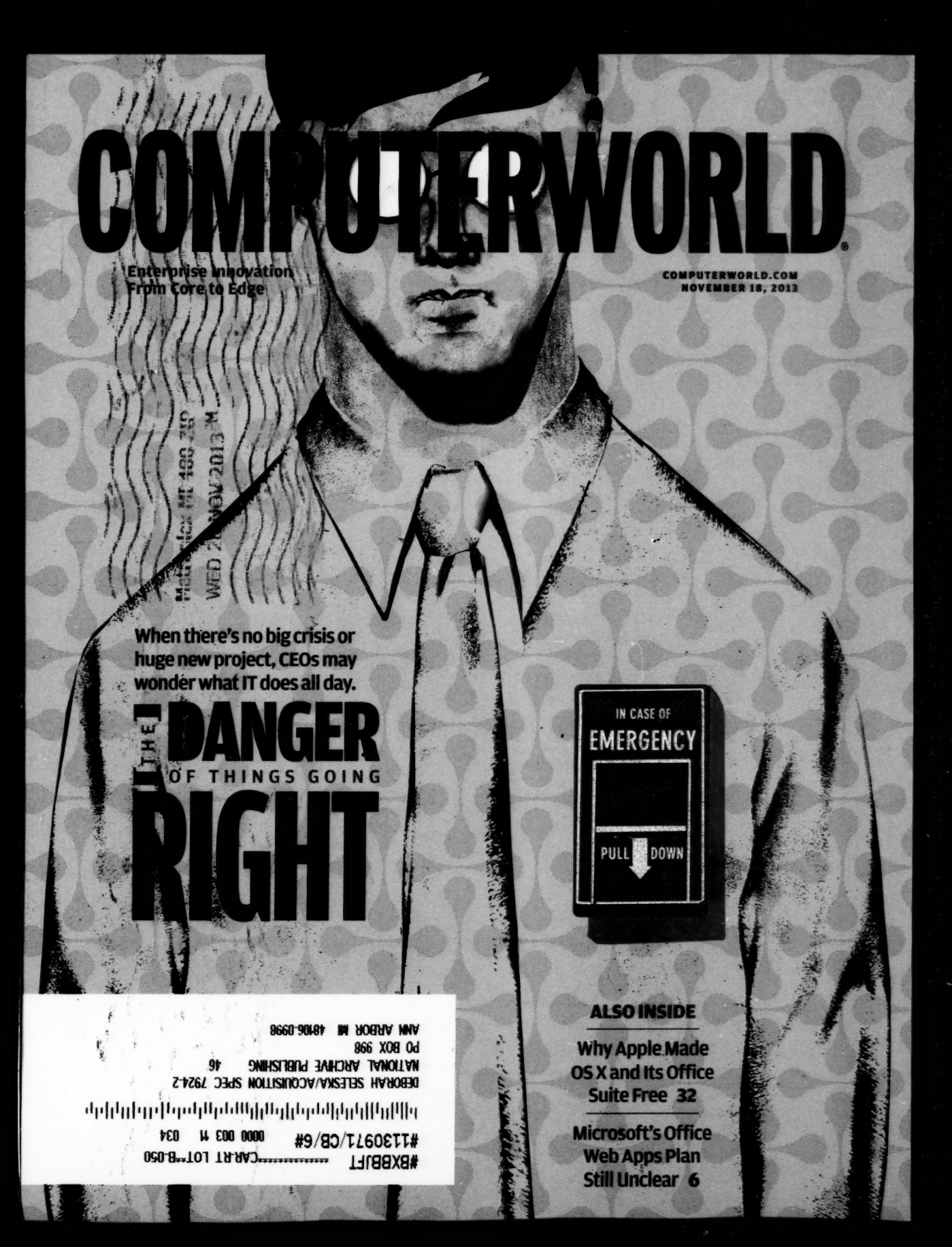

When there's no big crisis or huge new project, CEOs may wonder what IT does all day.

THE DANGER OF THINGS GOING RIGHT

ALSO INSIDE

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SUPPORTING MOBILITY
WHILE MANAGING RISK

The new IT challenge: how to give employees the mobile access they want, while keeping corporate data secure and protected.

Mobile devices are no longer a trend, they're an integral part of our daily lives. As a result, today's tech-savvy employees are demanding the same fast and flexible mobility standards in their work life that they experience in their personal life. Regular upgrades to new devices and unfettered access to corporate data, the latest apps and social media are now expectations, not perks.

There's no doubt about it: An efficient, mobile workforce is good for business. However, it presents a whole new set of challenges

for IT—introducing new threats to an already-challenging security environment.

With so many employees now using their personal smartphones and tablets to conduct business, IT is being forced to support a multitude of constantly changing mobile platforms, apps and devices, all while keeping data secure and enforcing mobile policies that keep personal and business data separate. This is no easy task, even for the most seasoned IT managers.

WHAT I.T. PROFESSIONALS ARE SAYING ABOUT MOBILE DEVICES IN THE WORKPLACE

In a recent Quick Poll conducted by IDG Research,* IT professionals were asked, "What are your organization's top three challenges around mobility today?" Sixty-three percent said that securing data is their number-one concern, and contributing to that concern most was network security, followed closely by data encryption. Updating and enforcing mobile policy and keeping work and personal data separate came in second and third on the list of top challenges.

Twenty-eight percent of employees now carry two or more personally owned mobile devices in the workplace that are supported by IT.*

While IT wants to support mobility and employee demand to use their own devices, it's clear that they also see the potential for big trouble as company data leaves the safety net behind the firewall and is shared across devices, in the cloud and via social networks.

HELPING I.T. SOLVE REAL-WORLD CHALLENGES

With our deep knowledge of mobile systems in the business world, Verizon understands the security and management challenges IT faces with the proliferation of devices and platforms in the workplace. Our solutions are designed to help IT managers overcome real, everyday mobility challenges.

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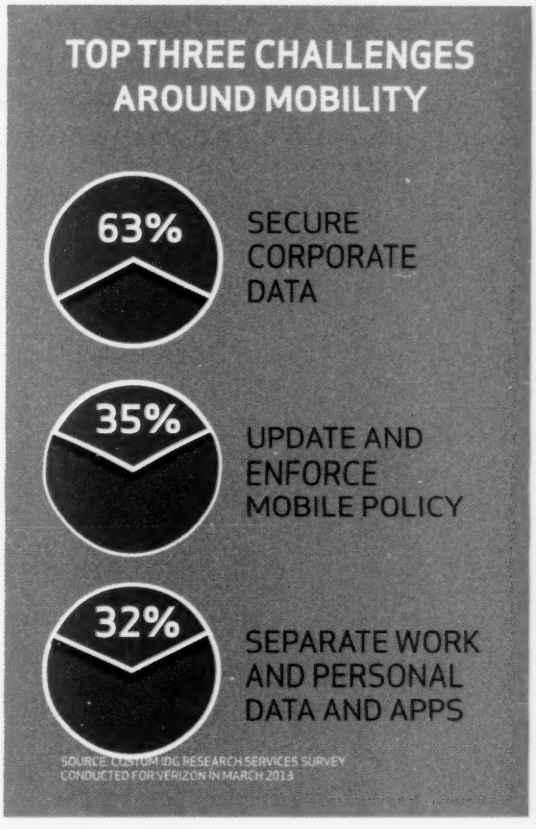
Identity and Access Management: A leading pharmacy chain wanted to give physicians the ability to write and transmit prescriptions via mobile devices, but was challenged by stringent security and compliance regulations. Verizon provided a customized identity and access management solution that helped the chain ensure data security and meet industry regulations.


TOP THREE CHALLENGES AROUND MOBILITY
63%
SECURE CORPORATE DATA
35%
UPDATE AND ENFORCE MOBILE POLICY
32%
SEPARATE WORK AND PERSONAL DATA AND APPS
SOURCE: CUSTOM IDG RESEARCH SERVICES SURVEY CONDUCTED FOR VERIZON IN MARCH 2013

Employee-Owned Devices: A large multinational company needed to develop a new strategy that supported employees who use their own devices, while keeping proprietary data safe and secure. The company turned to Verizon to help develop a beginning-to-end mobility roadmap and security assessment that led to effective governance policies.

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Explore the many ways Verizon can help you create a secure and efficient mobile workforce at
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*IDG Research Services, March 2013.
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intel inside XEON

[1] Based on IBM comparison of configuration and setup by customer onsite versus delivered by IBM using Intelligent Cluster service, which is an optional feature available at additional cost.
[2] 3x cores based on industry standard 42U rack comparing 42 1U x3550 M4 rack servers with 2 Intel® Xeon® E5-2600 processors 8 cores each = 672 cores vs. 84 NeXtScale System nx360 m4 nodes with 2 Intel Xeon E5-2600 v2 processors 12 cores each for 2016 total cores.
[3] SPECint_rate_base2006 - 669 on IBM iDataPlex dx360 M4 (Intel Xeon E5-2690) vs. 918 on IBM NeXtScale nx360 M4 (Intel Xeon E5-2697 v2). www.spec.org. Results current as of 9/20/13.
[4] SPECpower_ssj2008 - 5392 on IBM iDataPlex dx360 M4 vs. 7347 on IBM NeXtScale nx360 M4. www.spec.org. Results current as of 9/20/13.

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Fresh Insights
New Trends
Great Ideas

Heads Up

Recently installed at Lawrence Livermore National Laboratory, Catalyst is a high-performance computing cluster that's designed to serve research scientists and provide a proving ground for new HPC and big data technologies and architectures.

LAWRENCE LIVERMORE NATIONAL LABORATORY

HIGH-PERFORMANCE COMPUTING

New Supercomputer Uses SSD Storage

A NEW SUPERCOMPUTER uses solid-state drive (SSD) storage as an alternative to DRAM and hard drives, which could help speed up internal data transfers.

The supercomputer, called Catalyst, will be deployed at Lawrence Livermore National Laboratory in California. Built by the U.S. Department of Energy, Cray and Intel, Catalyst is capable of speeds of up to 150 teraflops; it will become available for use in late November.

Catalyst has 281TB of total SSD storage. Its processing infrastructure is broken into 324 units called "nodes," and each node has two 12-core Xeon E5-2695v2 processors, for a total of 7,776 CPU cores. Every node has 128GB of DRAM, and 304 of them have 800GB of SSD storage.

The new computer uses the open-source Lustre file system to help break bottlenecks and improve throughput.

The overall performance of Catalyst is nowhere near that of the world's fastest supercomputer, Tianhe-2, which delivers a peak performance of 54.9 petaflops. But the use of SSDs as an alternative to both volatile DRAM and hard drives sets the new system apart.

Even though they're more expensive than other storage options, SSDs are increasingly replacing hard drives in servers to improve data access rates. They are also being used as cache in some servers.

With faster SSD storage, Catalyst is adept at solving big data problems, in areas such as bioinformatics, analytics and natural language processing, according to Lawrence Livermore.

– Agam Shah, IDG News Service

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ENTERPRISE APPLICATIONS

Marin County Aims to Replace SAP ERP System

Officials in California's Marin County are looking for new ERP software to replace a troubled SAP implementation that was at the center of an ugly legal battle involving the county, SAP and systems integrator Deloitte.

Marin officials are focusing on Tier 2 vendors, especially ones that have experience in the public sector, said County Administrator Matthew Hymel during a meeting of the supervisory board.

Tier 1 ERP vendors, such as SAP and Oracle, offer "complicated products that serve Fortune 500 companies," he said, whereas Tier 2 vendors are generally smaller and tend to focus on specific functionality.

Given the "pain" caused by the SAP project, Marin officials are taking a conservative approach to the new initiative, Hymel added.

For one thing, the project will stick to phased deadlines. "We're not going to go live unless we're ready," he said. More resources for training users, as well as improved efforts to take in user feedback, are also planned.

The county has spent at least $30 million on the SAP project, which dates to 2006, and at one point sought $35 million in damages. It accused Deloitte of staffing the project with inexperienced consultants, leading to delays and cost overruns.

– CHRIS KANARACUS, IDG NEWS SERVICE

BETWEEN THE LINES
By John Klossner

OUTSOURCING

Infosys Settles U.S. Visa Scam Charges

IN A SETTLEMENT announced this month, the U.S. government alleges that offshore outsourcing giant Infosys violated visa laws to increase its profits, reduce visa expenses and avoid tax liabilities.

But instead of pursuing a court case, the U.S. will instead accept a $34 million settlement payment from Infosys.

That's standard procedure for visa violation claims, but this is the largest settlement ever reached, according to the government. Still, the settlement figure represents a fraction of the $6.99 billion in 2012 revenue generated by the Bangalore, India-based IT services provider.

Infosys denies any wrongdoing.

The government action addresses the company's use of the B-1, or business visitor, visas.

B-1 visas are generally intended for short-term visits to the U.S., such as trips to attend conferences. They are relatively easy to get and aren't subject to the caps, fees or wage requirements that govern use of H-1B visas.

Infosys, which applies for thousands of H-1B visas every year, "unlawfully" supplemented its workforce with B-1 visa workers, according to the U.S. complaint, which alleged that Infosys wrote letters to U.S. officials with "false representations regarding the true purpose" of B-1 workers' activities. Visa applicants were also told what to say to avoid suspicion, according to the government.

"We will not tolerate actions that mislead the United States and circumvent lawful immigration processes, whether undertaken by a single individual or one of the largest corporations in the world," said John Bales, U.S. attorney for the Eastern District of Texas, whose office conducted the investigation.

Infosys said its B-1 visa use "was for legitimate business purposes and not in any way [designed] to circumvent the requirements of the H-1B program."

Infosys faces no restrictions on its ability to obtain future visas, but it did agree to improve its visa compliance procedures.

– Patrick Thibodeau

Micro Burst

Malware infections of Windows XP could jump by

66%

after Microsoft ends support for the software in April 2014.

TECH MANUFACTURING

Apple to Build U.S. Plant, Invest In Green Energy

Apple plans to build a components plant in Mesa, Ariz., that will run entirely on renewable energy.

It will be Apple's latest move to expand its U.S.-based manufacturing operations. Most of the company's products are made overseas, and Apple has been under pressure to invest at home.

The project will create more than 2,000 jobs, Apple said in a brief statement earlier this month. That figure includes 700 manufacturing jobs created in the first year and 1,300 jobs in construction and other fields, according to Arizona Gov. Jan Brewer.

Apple said that it will work with Salt River Project, an electric utility in Arizona, to create "green energy sources" to power the facility.

"Their investment in renewable energy will also be greening our power grid and creating significant new solar and geothermal power sources for the state," Brewer said in a statement.

Apple has said it would invest $100 million this year in domestic production of Macintosh systems, and that it would make one of its Mac lines exclusively in the U.S.

In May, the company said it would make some Mac parts in Texas.

– STEPHEN LAWSON, IDG NEWS SERVICE

NEWS ANALYSIS

Office Web Apps Plan Still Unclear

Microsoft's latest moves counter Google's gains, but the company has yet to disclose a long-term plan for its cloud-based tools. By Gregg Keizer

MICROSOFT had to add real-time collaboration tools to its free Office Web Apps suite as a short-term move to blunt the key advantage of Google Docs.

"Real-time collaboration is what got Docs on the map. And Office didn't have it," said Michael Silver, an analyst at Gartner.

But even after Microsoft added the capability as part of a Web Apps upgrade this month, its long-term strategy for the browser-based versions of Word, Excel and PowerPoint remains unclear.

Office Web Apps are available free of charge or as part of Office 365, the hosted software offering that Microsoft has been aggressively promoting to businesses. Through Office 365, Office Web Apps are linked to SharePoint, Microsoft's collaboration platform and central hub for storing, accessing and sharing documents.

Clearly, one of the key reasons for the existence of Microsoft's cloud-based suite is to defend against customer defections to Google Apps for Business, a $50-per-user-per-year service that includes Docs. Microsoft currently counters that with two Web Apps-based Office 365 plans, one for small businesses that costs $60 per user annually, and one for larger companies that costs $96 per user per year.

Beyond that, though, the Office Web Apps strategy is a mystery to many experts. Is it an eventual substitute for Office on the desktop? A loss leader aimed at consumers? The cross-platform Office for tablets running Android or iOS?

Central to those questions is the key Office Web Apps dilemma: Microsoft must walk a fine line between not offering enough functionality and offering too much. Doing the former would negate its ability to compete with Google; the latter course could prompt businesses to dump the higher-priced Office perpetual licenses or revenue-generating Office 365 plans in favor of Office Web Apps.

Rivals don't have that problem, since their business models don't rely on software sales, but on sales of advertising (Google) or devices (Apple).

In the past, Microsoft has done little to promote Office Web Apps. Anecdotally, many businesses don't even know they exist, suggesting that Microsoft may have been more afraid of adding too much functionality than it was of failing to match Google.

Microsoft officials have hinted that this month's moves may mark the launch of a long-range plan to eventually use Office Web Apps as a substitute for Office, positioning them as a core offering that generates revenue via related sales of other products, such as server software and services.

However, some experts say it's unrealistic for Microsoft to expect something free, like Office Web Apps, to produce equivalent revenue through secondary sales of, say, add-ons or services, or that subscriptions to the least expensive Office 365 plans built around Office Web Apps could compensate for large-scale desertions from the pricier products.

"Office Web Apps are an important piece longer term to Microsoft, but will remain a complement to the commercial Office," Silver maintained.

Wes Miller, an analyst at Directions on Microsoft, said Microsoft likely sees Office Web Apps and its recent improvements as a powerful sales tool for SharePoint, a multibillion-dollar product line. "It's SharePoint value that's important," he argued. "They have to keep adding value to SharePoint to [keep] it relevant." ◆

Office Web Apps are an important piece longer term to Microsoft, but **will remain a complement** to the commercial Office.

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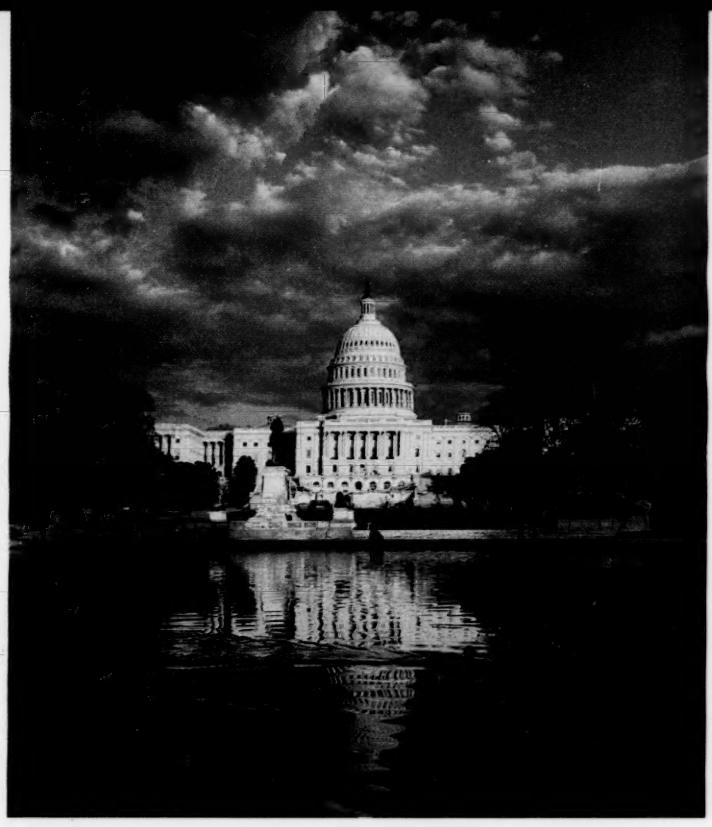

Fed Data Center Plan Gets Push in Senate

A new bill sets 'hard deadlines' for consolidating U.S. government data centers and calls for 'strengthened oversight' of the effort. By Patrick Thibodeau

FEDERAL AGENCIES aren't meeting Obama administration goals for consolidating data centers, so a bipartisan U.S. Senate bill that sets "hard deadlines" is on track for adoption.

In early 2010, the federal government set a goal of closing 40%, or 1,253, of its 3,133 data centers by the end of 2015 — a move that would save $3 billion. But it has fallen behind schedule by nearly 300 data centers, so the savings thus far have been minimal — $65.3 million, according to a Government Accountability Office report issued last spring.

The GAO report called for "strengthened oversight" to ensure that the consolidation process gets back on track.

The three primary sponsors of the Senate bill — Michael Bennet (D-Colo.), Tom Coburn (R-Okla.) and Kelly Ayotte (R-N.H.) — say the legislation will add oversight and regular reporting to the process to help ensure that deadlines are met. The trio pointed to the GAO report to make the case for legislation.

The consolidation bill, dubbed the Federal Data Center Consolidation Act of 2013, was advanced by the Senate Homeland Security and Governmental Affairs Committee to the full Senate early this month. It's expected to pass.

Nonetheless, considering that the federal government is hardly alone in experiencing data center consolidation difficulties, it's unlikely that such legislation would have much of an effect, said Gartner analyst Rakesh Kumar.

In fact, Gartner has found that many large enterprises are having problems with the same task. For instance, some have dozens of data centers, and the numbers are constantly growing with merger and acquisition activity, making it nearly impossible to get down to what Kumar considers to be the right number of data centers: no more than two per continent, with one of those acting as a backup.

And even organizations with strong consolidation plans face another huge obstacle: office politics. In short, consolidation talk scares people, Kumar said, noting that internal power struggles have stopped a number of data center reduction efforts.

According to the GAO report, other major challenges to the government's plan involve the cloud and virtualization. Some agencies don't have the expertise to turn to those technologies, or they have trouble budgeting for on-demand, scalable cloud services.

Ray Bjorklund, who heads government market research firm BirchGrove Consulting, wonders whether any legislation can help overcome such challenges. "[If the Obama administration] couldn't make it work, how is a law going to make it work?" he said, and questioned whether there is any penalty for agencies that fall behind.

> [If the Obama administration] couldn't make it work, **how is a law going to make it work?**

Nonetheless, there is evidence that some federal agencies are starting to invest heavily in cloud computing as an alternative to internal data centers, according to market researcher Deltek.

The total value of federal contracts for cloud services grew from $27 million in 2009 to $4 billion in 2012 to $17 billion in fiscal 2013 ended Sept. 30, Deltek found.

"Agencies are moving much more aggressively to the cloud," said Deltek analyst Alex Rossino.

There will be a slowdown in cloud spending over the next two years because of sequestration, Rossino said, but spending will accelerate quickly after that. ◆

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THE Grill

Pradeep Mannakkara

An IT reorganization and a quick move to the cloud gave this CIO early wins.

Family: Married with two children, ages 2 and 6.

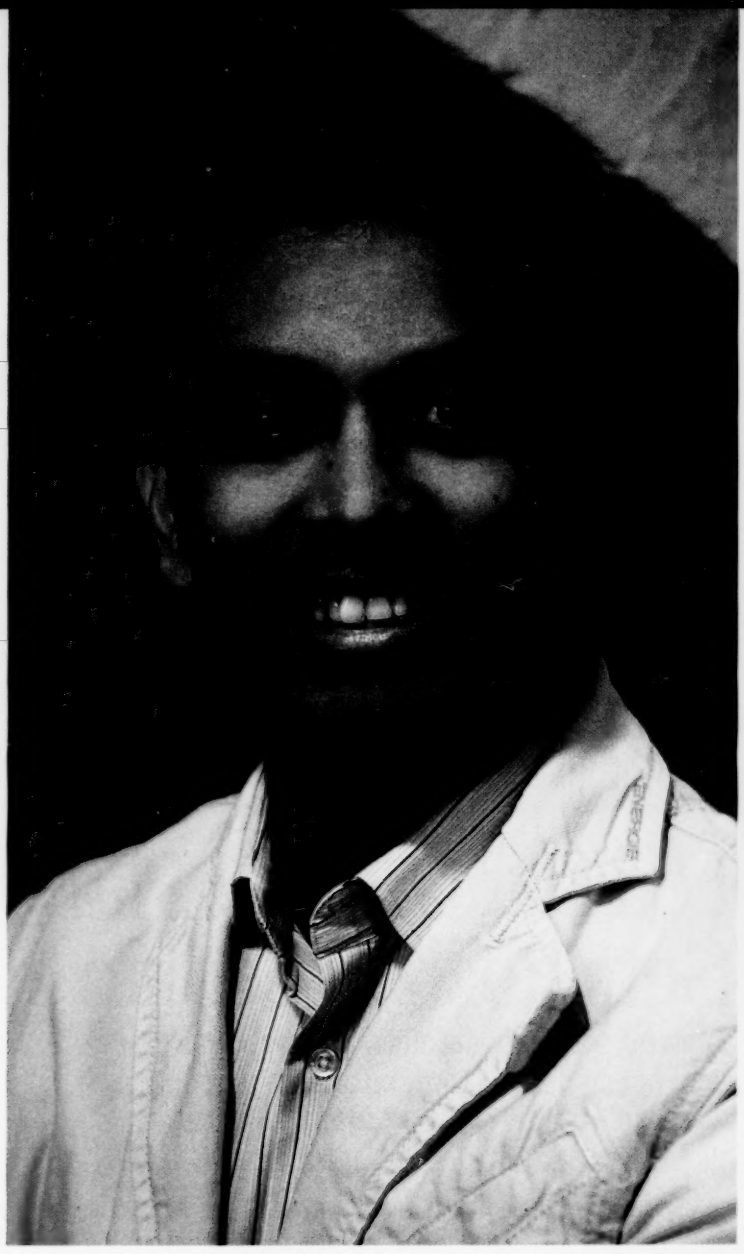
Career path: Previous jobs include senior IT positions at AOL, Visa and CNET.

What's your favorite tech toy? "My iPhone, because I control a lot of things in my household with it."

How do you spend your downtime? "When I'm not working, I'm spending time with the kids. We love to travel. I've got a pilot's license, so I love to fly. I snowboard when I have the time, and I sail and motorcycle."

What's on your iPod? Rock and pop music, and iTunes radio.

What languages do you speak? English, French and Sinhalese, with some Italian, Cantonese and Mandarin.



WHEN PRADEEP MANNAKKARA *took the CIO position at Rosetta Stone, he encountered an IT infrastructure that was nearly the same age as the 21-year-old language-learning company. So Mannakkara established a plan to not only update, but also transform Rosetta Stone's technology stack and its 70-person IT department. Since starting in 2011, he has shifted much of the aging infrastructure to cloud-based platforms and added more mobile applications and state-of-the-art technologies. He says the changes achieved his goals of enabling a more efficient workflow and fostering innovation, while also increasing the strategic value of the IT organization.*

How did you change the company's outlook? We had to get some incremental wins. We had to look at what would help us grow our revenues. And I reorganized the team.

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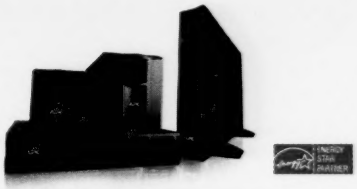

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We had a structure that was called Build or Run, and it was not very effective for articulating roles and responsibilities. So you now see what you'd expect in a technology-driven organization: [Elements such as] a data center services function, a Web engineer function. Our corporate systems function was spread out, so we separated our BI and enterprise architect functions. Then we said, "Who is each of your customers?" so there's a clear line and accountability. Once we got the trust and saw wins, we started moving one after another, pushing the next wave, which was into cloud.

What was your take on the technology infrastructure when you arrived? A lot of homegrown and early 2000s technology. The beauty was we were having to leapfrog, which worked out well. We moved to cloud in much more spaces than we would have if we were on other, newer technology. In this last 12 months, we've made a very rapid move to cloud.

What technology changes have you made so far? We did the Salesforce server cloud in April of last year. We moved away from Microsoft Outlook for email and went to Google for email as well as app storage. We've looked at other ways of obtaining cost efficiencies as well as driving more capabilities as we rolled out a slew of cloud-based technologies. We also looked at Dropbox and Box and other [file-sharing] services. We were finding out [workers in] remote locations as well as our marketing folks were setting up private Dropbox files to share material, and our engineering team was doing this, too. This could be corporate [intellectual property], and this is happening in companies all over the place, so we said, "We need a corporate solution." Now we're pushing Box as a standard. It's less to manage and it's all in the cloud, and they can work from anywhere.

And we went with Okta; it's a cloud-based single sign-on provider. Password resets were one of the biggest ticket items on our help desk, and with Okta they've dropped down to nothing. We also rolled out Concur for our employees who have to do expense reports. And for our commission system, we rolled out Xactly, which is built on the Salesforce platform.

What do you look for in new technologies? If things aren't simple, you're not going to have people using them. User interface is so important.

Do you still see benefits in on-premises systems? There are reasons to stay with on-premises solutions. I'd say, however, that a lot of those are fast disappearing. If I can get it done with the proper security faster and cheaper with cloud, I'd go for cloud because it has the value I look for. How much value I provide to my organization is based on how fast I can deliver. If I'm doing this on-premises and have to have a different set of resources to support it, but it's not adding the same value, then my organization doesn't win.

The other part of this, when you look at technology, three years is probably the amount of time you'll run it, and then you figure there will be something better. So I'm making things modular enough so I can swap out components. And you can do that easier with the cloud, because with SaaS you don't have all that hardware and software on the books. I've changed about 80% of my technology stack in the past two years, and a lot of this has moved to the cloud. But I've also brought some on-premises. For example, we use Magento for our e-commerce. We elected not to move this to the cloud at this time because it's so central, it touches so many systems. But at some point, would we consider moving to the cloud? Absolutely.

We moved to cloud in much more spaces than we would have if we were on other, newer technology. In this last 12 months, we've made a very rapid move to cloud.

What is your biggest IT project now? We're doing things around data and reporting, and there are some exciting initiatives there. As for challenges, one that we've had is with the multitude of videoconferencing systems out there. There's Polycom in the conference rooms, people are using FaceTime and Skype and Google Hangout. We just signed with Blue Jeans. They're in the cloud as well. They allow you to do high-definition audio and videoconferencing.

How do you help lead transformation? It's really being part of that core team, being part of defining where we go as a culture. You can say, "I want to change it," but your actions dictate what happens. I try to listen and understand but also drive us to where I think we need to be. There are disciplines I use, but a lot of it comes down to listening and communicating and driving some of those uncomfortable conversations we sometimes need to have, challenging ourselves about what really needs to happen to help us have better outcomes.

— *Interview by* Computerworld *contributing writer* **Mary K. Pratt** *(marykpratt@verizon.net)*

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[THE] DANGER OF THINGS GOING RIGHT

If there's no crisis or big project to work on, CEOs may wonder what IT does all day. Here's how to make sure your contributions don't fade into the background. **BY MINDA ZETLIN**

ROBERT HANDLER, an analyst at Gartner, will never forget one of his earliest consulting jobs. "I was asked to gather enough data on a CIO to fire him," he recalls. Handler dutifully began researching the CIO's current and past activities but could find no obvious missteps. In fact, the man in question was the best CIO he'd ever met.

Eventually, he returned to the CFO who had given him the assignment to ask why the CIO was to be fired. The CFO answered, "'He's spending a lot of money, and everything seems to be working just fine,'" Handler recalls. "And I thought, 'I don't ever want to be a CIO!'"

BRIAN STAUFFER ILLUSTRATION

Handler had encountered one of the paradoxes of the IT world: Technological achievements often result in things *not* happening — bad things, like outages, lost data or network breaches. "On a good day in IT, nobody knows you're there," says Joe McLaughlin, vice president of AAA Western and Central New York, a Buffalo-based not-for-profit that provides emergency roadside assistance and other services to its 880,000 members.

Worse, top executives may know that you and your staff are there, but they think you're updating your Facebook profiles while waiting for requests for help. Like the CFO who Handler encountered, they may assume that if they don't see new technology being deployed or major problems being repaired, there's nothing much going on. But in reality, a good IT person will, for example, "be constantly looking at resources to find out about zero-day attacks and other threats," says Mike Vitale, CTO at TalkPoint, a New York-based webcasting provider that facilitates about 20,000 webcast events per year. "If there is a threat, the provider will put out a patch quickly. But then I have to find out, if I install the patch, will it stop part of the website from working? People don't know about the blocking and tackling that goes on every day."

"There's this misconception that you stand up your servers and then they run in perpetual motion from that point forward with no care and feeding involved," adds Chris Brady, CIO at NextGear Capital, an inventory finance provider for used-car dealers whose 75 branches serve 9,000 dealerships.

That misconception is easy to understand. Corporate executives may think enterprise IT systems are like home computers: You set them up and they keep running with little or no intervention as long as security updates and patches are set to automatically download. It's hard to argue with the logic that servers costing $50,000 or more should have at least the same capabilities as the $1,000 Macs or PCs sitting on their desks at home.

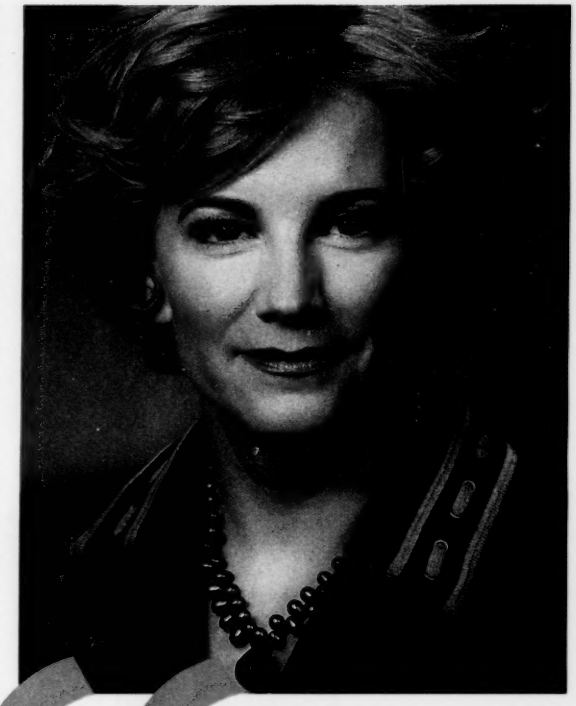
The same goes for the functions they're accustomed to using easily in the cloud, such as email across many different devices. "A lot of IT teams for the past 10 years have been supporting Microsoft products," Vitale says. "Then — boom! — overnight this executive has an iPad and wants it to work on the network. People are getting rid of BlackBerries and want to use Android or iOS devices. It sounds easy to them, but it's not. They just expect it to work, and if it doesn't, there's a good deal of anger."

Indeed, IT often goes unappreciated unless and until something fails to work as expected. "I've seen a lot of companies where business units can overrule IT," Vitale says. That philosophy holds, he says, unless an important tech function fails. "Then they're waiting for the IT team to swoop in and save the day. It's the most thankless job in the world right up until something goes wrong."

But while it may be tempting to deliberately break something or allow it to fail so as to gain the recognition that comes with fixing a business-impacting problem, deliberately doing your job badly will not be beneficial to your department, your employer or your career. And there are better ways to get IT's value across to top executives, even when things are running smoothly.

Let Them Know What You're Doing

"There is this conception that if I'm concentrating on BYOD, all the old stuff like server patching and firewall configuration can take a back seat. But those things need to be taken care of as much as the new shiny projects do," says Joel Dolisy, CTO (and top IT executive) at SolarWinds, an Austin-based network management company with annual revenue of $269 million. The solution, he says, is to provide regular updates on what IT has accomplished. For example, he says, "I have a meeting with my CEO today to talk about the latest things we've achieved in Web development, and that people are not twiddling their thumbs all week waiting for problems to happen."



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"Executives are sensitive to money and to the total head count devoted to the IT department. Providing that information on a regular basis is primordial, because otherwise people think the money is going into a black hole," Dolisy says.

That's not a good situation. "There's a clear danger that if IT is not communicating well with the rest of the executive team and providing transparency into day-to-day operations, a lot of mundane tasks will be trivialized," Dolisy says. "At that point, it's difficult to deal with. The only thing that comes from the rest of the executive team is pressure to downsize the budget and downsize the number of heads, and only work on the new shiny projects. That's a recipe for disaster."

And Vitale wonders, "How many jobs have been outsourced just because the IT team did a poor job of explaining what they do on a daily basis?"

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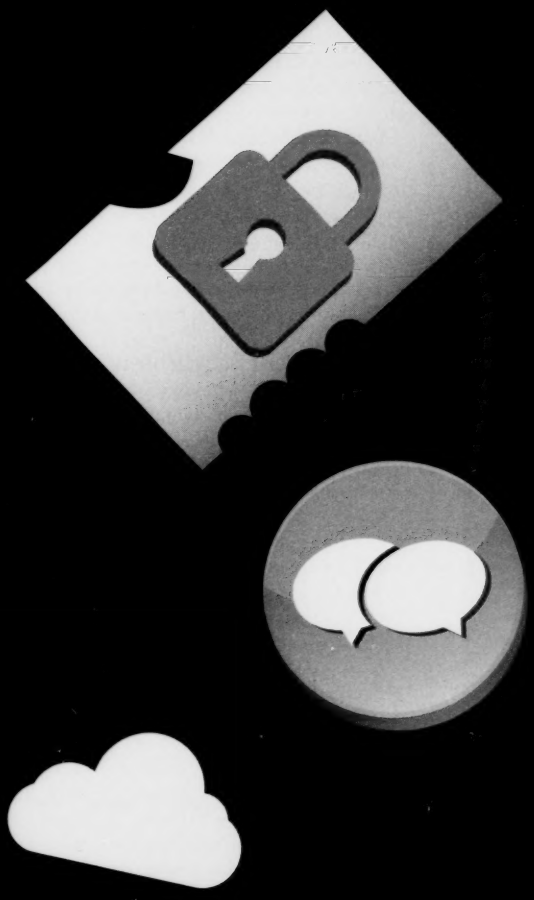

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THE BRIEF LIFE OF A PMO

WHAT'S THE AVERAGE LIFE SPAN of a project management office or leadership role? In many companies, it's two years, according to Robert Handler, an analyst at Gartner, which does regular surveys of PMOs.

"We noticed a pattern," he says. "A project blows up, and someone in the company says, 'It can't happen again — how about a PMO?' So the PMO is up and running, and for the first year everything is great." Eventually, Handler says, the PMO manager gets bored and starts adding other functions such as IT governance, asking project owners to report on a regular basis, which merely has the effect of annoying them. No more projects blow up, but many are slightly late and/or over budget as is common throughout the IT world. "So the PMO gets blamed and then disbanded," Handler says.

That might be the wrong move, though, because the PMO was serving a real function. Statistically, he says, about 1 project in 6 will go horribly wrong — hugely over deadline or over budget or both, or is not completed or adopted. If that didn't happen while the project management office or oversight person was in place, it's because the PMO was doing an effective job.

"Somebody has to do that work," says Joel Dolisy, CTO at SolarWinds. "Someone has to work with stakeholders and define their requirements." Unfortunately, he says, "People treat the PMO like it's a black box and they want magic from it. Because they don't want any of their own business processes to be affected."

So how do you keep a PMO alive past that dreaded two-year mark? Begin by limiting its activities to what's needed to keep projects on track. "We have a director of project management rather than a whole office," says Joe McLaughlin, vice president of IT at AAA Western and Central New York. "A PMO is generally full of bureaucracy and needless Microsoft Project reports."

McLaughlin reduced the complexity at AAA's PMO, and vastly simplified the requirement document to one that's written in plain English and is easily understood. Once it's filled out, he says, "We don't ask them to review requirements. Instead, the director of project management sends back a one-page scoping document that basically says, 'This is what we think you want to do — is that correct?'"

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For McLaughlin, the solution is to give the CEO a written report — but a brief one. "It's very simple and executive-level, and it's one page," he says. "Basically, the question is: Are we winning or losing? If we're winning, maybe the executive can move on to something else. System availability was 99.89%. Do we care about the 0.11%? Maybe not."

Brady tries to casually mention to the CEO whenever her team completes a substantial project. Let's say they've just updated the company's mail servers to the latest version of Microsoft Exchange. "No one's going to see anything other than that the mail server has changed," she says. "But that's a pretty big project for the infrastructure team. So if you take your high-level project plan and explain why you're doing it and the effort involved, they'll see that there's a substantial project your team is doing."

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If you want top executives to value IT's efforts, it's important to communicate those efforts in terms business executives care about. That means learning which metrics those executives are watching.

"For our CFO, an important metric is EBITDA," says Kevin Broadway, CIO of MetroPCS, a wireless carrier acquired by T-Mobile in 2012 for $1.5 billion. (EBITDA, an acronym for earnings before interest, taxes, depreciation and amortization, is a metric commonly used by companies with large debt obligations or expensive assets that depreciate over time. It measures how profitable their operations are, irrespective of financing and tax issues.) "IT contributes to EBITDA one way or another," Broadway says. "As we invest over time and our expenditures change, we make it worse when we're spending money. So if we twist the metric to invest more in IT, in theory you should see a positive effect on EBITDA over time."

How does this differ from return on investment, or ROI, a much more commonly used measure in IT departments everywhere? It doesn't, or not very much. In both cases, the key challenge for IT and finance is to go back and measure the economic effects of a project after it's completed and has been in place for a while. Broadway adds one extra step by figuring out how those effects accrue to MetroPCS's general profitability. "The one-to-one relationship isn't necessarily there," he concedes. "But it's another way to look at IT's contribution at a macro level."

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When Bad Things Don't Happen

Explaining business value to CFOs and CEOs gets more challenging when that value is the reduced or eliminated risk of a business-impacting technology failure. But it's important to make the effort. "The onus is on the CIO to translate those risks you've identified and make a compelling case as to what the risk is to

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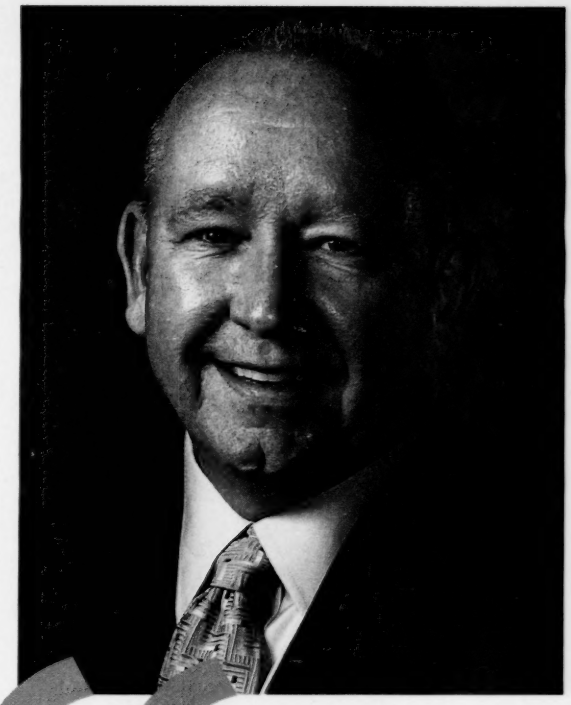

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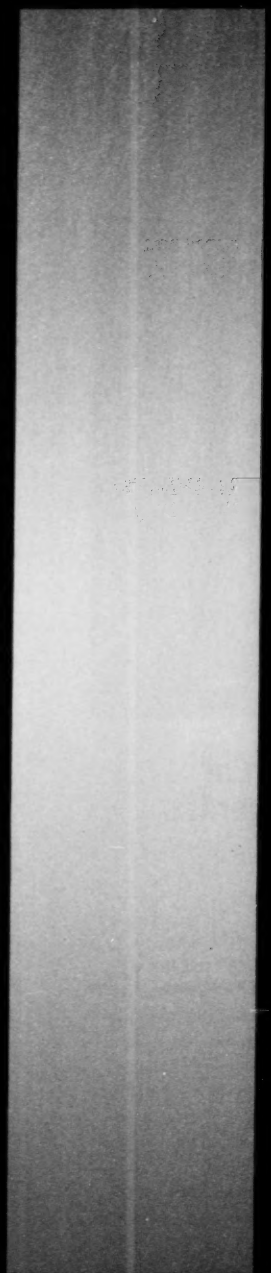

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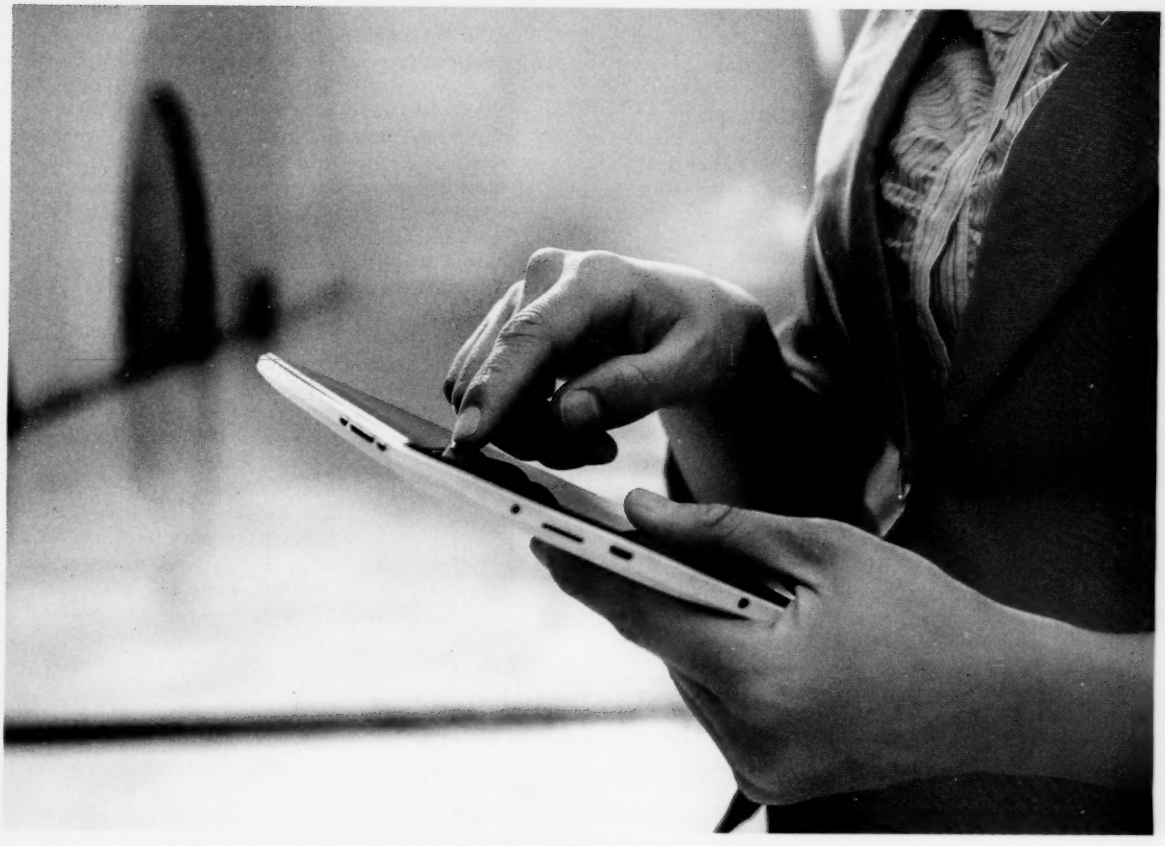

Mobile's New Ergonomics

Today's devices give you freedom to move, but they have limitations of their own.

BY LAMONT WOOD

FOR DECADES, the prescriptions of office ergonomics sought to minimize the risk of musculoskeletal damage for people who sat at desks for hours at a time. The goal was to improve their productivity by keeping them in their seats. But increasingly, today's ergonomics experts don't think sitting for long periods is a good thing.

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Meanwhile, the upsurge of mobile devices would seem to offer a way to alleviate the problem — but it turns out that such devices come with ergonomic challenges of their own.

"For decades, ergonomics was billed as a way to get people to stay at their desks longer and more productively," says Dr. James Levine, director of obesity solutions at the Mayo Clinic in Rochester, N.Y., and Phoenix. "Over the past six or seven years, we have realized the consequences of people sitting too long, and it is an astonishing list."

Specifically, he lists (in no particular order) low productivity, back problems, obesity, hypertension, hyperlipidemia (elevated levels of lipids in the blood), cardiovascular diseases, deep vein thrombosis and diabetes, as well as mental sluggishness, apathy, listlessness, mild depression and perhaps even clinical depression.

"We need to reverse the process of 40 years and get people out of their chairs and off their bottoms," Levine says. "Office productivity and school grades improve as people get mobile, as they get up and move. They will tell you that they feel brighter and sharper. They will say, much as I hate the term, 'I feel more alive.' About 10 years ago, I had senior scientific colleagues screaming at me in lecture halls about this, saying I was wrong, but now there is international recognition that sedentariness is killing people."

Your Tablet Has a Downside

Oddly enough, no one is saying that mobile devices hold the answer with their potential for personal mobility. Perhaps this is because mobile gadgets introduce new ergonomic problems.

Tablets, for instance, might at first glance seem to free people from their desks, but in fact people tend to place them flat on their desks and read them as if they were books, says Alan Hedge, director of the Human Factors and Ergonomics Laboratory at Cornell University in Ithaca, N.Y. With a book, he notes, people will occasionally change posture as they turn the page, but with tablets they can remain hunched for long periods.

"Leaning forward doubles the compressive forces on the vertebrae in your lower back compared to leaning back," explains Hedge. "When leaning back 20 degrees in a lounge chair, you are really relaxing and halving the compression. That is why we say 'sit back and relax,' not 'hunch forward and relax.'"

One result of hunching is a syndrome called iPad Neck — chronic soreness of the back of the neck and upper shoulders. Hedge recommends propping up the tablet or putting it on a holder so you can keep your neck straight while you read.

Overuse of tablets may also interfere with getting a good night's sleep, says Mariana Figueiro, director of the Light and Health program of the Lighting Research Center, part of Rensselaer Polytechnic Institute in Troy, N.Y. Exposure to bright light in the evening will suppress the body's production of the sleep-aid chemical melatonin, making it harder to go to sleep.

Using an iPad at full brightness for two hours is enough to trigger melatonin suppression, she has found. (She also studied the effects of watching TV and using computers with CRT screens but didn't find any suppression — presumably because TVs and computer monitors aren't as bright as tablet screens and people don't get as close to them as they do to tablets.)

Extensive typing on a tablet opens another can of worms. "We've done a lot of work on this," Hedge says, noting that the most noticeable challenge is that people have to slow down when typing on touchscreen keyboards because they don't provide the resistance and tactile feedback of regular keyboards.

Second, users' fingers "tend to get sore, since there is no give on that surface," he says. "It's like drumming your fingers on your desk all day. For the convenience of technology, we have moved people away from typing and back to poking and prodding, dramatically reducing their productivity. It's ludicrous."

Haptic interfaces, which are designed to provide tactile feedback from flat screens, might help — eventually. But the technologies are still being developed and are not yet widely deployed on mobile devices.

Laptops, meanwhile, are nonergonomic by nature, since there's no way to adjust the distance between the keyboard and screen. It's all but impossible to situate yourself in an ergonomically acceptable manner while working on a laptop, Hedge says, because "your hands want to be close to your chest, but your eyes want to be focused on something two feet in front of you."

As for smartphones, people's use of their thumbs for texting has led to an upsurge of a condition called de Quervain syndrome, which is more commonly known as BlackBerry Thumb, Text Thumb and Nintendo Thumb, among other things.

"BlackBerry Thumb is really tendinitis at the base of the thumb, caused by rapid texting, and it's a growing trend," says Linda Weitzel, senior ergonomist at Xerox. Using other text input tools, such as predictive spelling and speech recognition, could help, she adds.

Hedge notes that a 2006 Virgin Mobile survey of British users found that reports of sore thumbs or wrists had increased 38% in a span of five years. More recent research has yielded similar findings.

There is a foundation of activity that we need to do throughout the day to stay healthy. This is the kind of activity that our parents and grandparents used to get throughout the day, but gadgets have taken it away from us.

JOAN VERNIKOS, FORMER DIRECTOR, NASA'S LIFE SCIENCES DIVISION

Stand Up for Frequent Breaks

If mobile devices aren't the answer, neither is a gym membership, since exercise outside the office doesn't undo the unnatural effects of sitting fixedly at a desk for hours, says Joan Vernikos, former director of NASA's Life Sciences Division.

"There is a foundation of activity that we need to do throughout the day to stay healthy," she says. "This is the kind of activity that our parents and grandparents used to get throughout the

day, but gadgets have taken it away from us." Going to the gym for half an hour in the morning and then sitting for the rest of the day doesn't provide that foundation, she adds.

"The signal to stand up does something to the body that tunes it, controlling the blood pressure and circulation," says Vernikos. "Every 20 to 30 minutes you need to stand up. More often is fine, but doing it 20 times at once and saying you are done is not sufficient; you must do it throughout the day."

Taking that advice to another level, Weitzel says she uses a standing desk and has recommended that option to hundreds of Xerox employees. "Most say pretty quickly that it does help their back. Out of all those people, I only know one that went back to sitting. Maybe it was high heels," she surmises.

Weitzel is quick to add that it's better to alternate between sitting and standing, saying that she tries to help employees recognize the signs of fatigue. "I educate them on how their body should feel and [tell them] not to push it beyond a certain point, since standing all the time can create as many issues as sitting."

Another cause of sluggishness could be streaming down from overhead: fixed, unchanging artificial lighting, especially in the absence of windows.

Figueiro has done studies for the U.S. Navy concerning the use of light to enhance crew alertness on submarines. She found that, left to itself, your body will drift into a 24.2-hour schedule, which would result in your sleeping hours eventually overlapping your office hours. To reset your body to the 24-hour day, you need to expose yourself to sunlight, but in winter people often commute in darkness. In the absence of sunlight, exposure to bluish light will serve, she says.

"Exposing yourself to sunlight can be a kick like a cup of coffee," Figueiro adds. Bluish cubicle lighting is also available, but, whatever the source, the light has to reach your retinas — you have to see the source, directly or reflected, she explains.

To ease general eyestrain, Weitzel recommends making sure that your display screen is clean and that your eyeglass prescriptions are up to date. And every hour, you should also take a break that involves looking off into the distance, she adds.

The Search for Relief

Unlike the posture-centric prescriptions of the old office ergonomics (see story below), the new playbook is more art than science, especially since it's constantly evolving to address new technologies. In other words, there is no one right answer.

"Sitting should be a posture of choice, not the posture of obligation," says Levine. "I am not saying to stop working and go for a walk, I am saying you should do the same amount of work but do it while in motion."

If you want to do more than a stand up now and then, Levine recommends a treadmill desk. But there are also simpler options, like walking while talking on the phone. You could schedule walks to coincide with calls and color-code them green in your calendar app. Then you can see at a glance how "green" your schedule is.

"Take the stairs. Go to the water fountain. If you would get in trouble for going to the water fountain, keep a water bottle across the room," not at your desk, says Vernikos. "You have to change your habits, [and] when you do, you have more energy."

Finally, experts agree that office workers need to accept a basic premise that, for many, apparently flies in the face of their work ethic: You're supposed to be comfortable at work.

"The first principle is to be comfortable," Hedge says. "Have a neutral posture. If there is any sign of discomfort, change what you are doing straightaway. Do not think that if you are at work it is supposed to hurt."

If it does hurt, Weitzel says, "we have to figure out something different." ◆

Wood *is a freelance writer in San Antonio.*

Some **Old Rules** Still Apply

YOU'VE PROBABLY HEARD THEM since the fourth grade, but the admonitions about posture in relation to office ergonomics still hold true.

"As a rule of thumb, you should be able to touch the screen with your fingertips," says Magdy Akladios, associate professor at the University of Houston-Clear Lake. "The knees, hips and elbows should be at a 90-degree angle. But it's also OK to, for instance, cross your legs – as long as you don't do it for eight hours straight."

The keyboard should also be flat on the desk. "There is no functional reason for the feet on the back of the keyboard," adds Linda Weitzel, senior ergonomist at Xerox. (One keyboard maker claims that the feet serve only to improve visibility for those who can't touch-type.)

Ignoring the rules is as risky as ever. "The complaints have not changed that much since the 1990s," says Weitzel. "The No. 1 problem is back complaints, since people are sitting all day long. Part of it is how effective the computer is today. Whereas five years ago office workers still printed out documents, today they don't even have to get up and go to the printer because they are forwarding documents electronically or sending links."

In the face of discomfort, act immediately. "The best fix is to stay away from the cause," says Akladios. "You need to prevent the problem motion and introduce a new set of motions, or take frequent breaks. Rather than do any one specific thing, you need to do something different from what you have been doing."

– LAMONT WOOD

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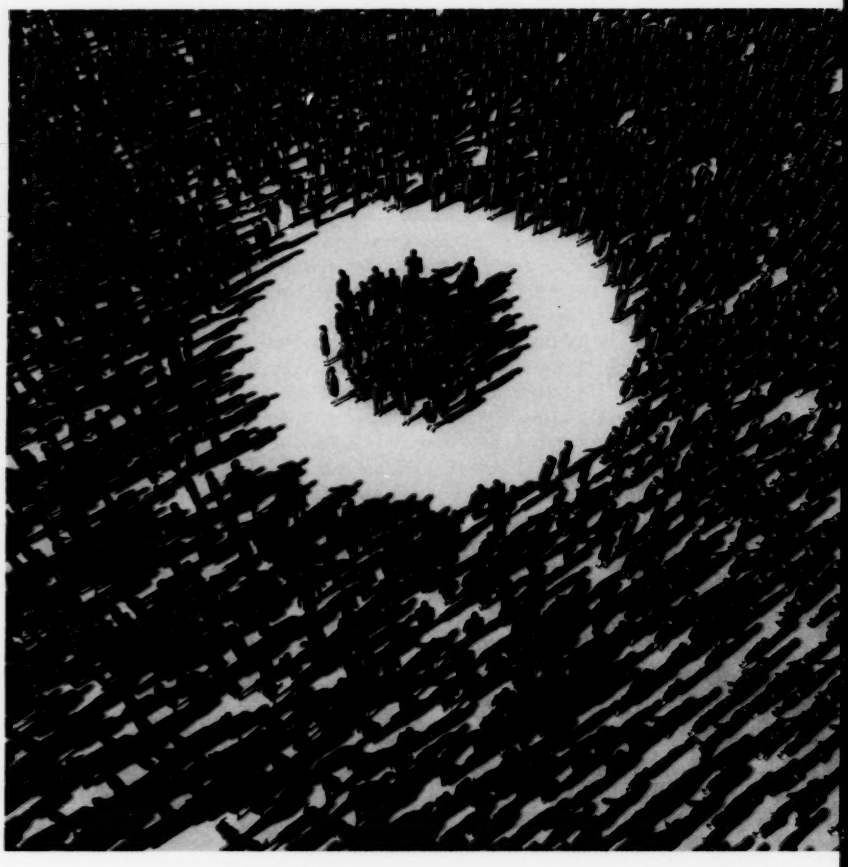
PERILS of the Brand SPECIALIST

Before you take a run at that Salesforce.com architect's job, pause and remember: It was once hip to be known as a Lotus 1-2-3 developer.

BY BETH STACKPOLE



FOR NEARLY 20 YEARS, Darren Moore has been known as "the ABAP guy," functioning as the resident expert in SAP's high-level programming language wherever he has worked. Before jumping into the SAP fray, Moore rode out the early part of his career as a certified NetWare engineer, finding steady employment throughout the 1980s and '90s installing small office networks.

Whether it's Novell NetWare, SAP ABAP (Advanced Business Application Programming) or some other hot technology brand, Moore believes product specialization is the most effective route to a high-paying job and all the career success that goes

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with it. "You have to have a specialization if you want to stick it out in the technology world," says Moore, who currently serves as SAP technical lead, a contract position, at Tyler, Texas-based Brookshire Grocery Co. "A generalist is going to have a hard time unless their path is toward management. If you're not very specific, you're not going to get the best situations."

So far, the approach has worked. By keeping an eye on trending technologies and investing in his own training, Moore has enjoyed a successful career as a contractor, finding the opportunities to be both plentiful and profitable. He says he has moved from $35-per-hour gigs as a NetWare networking and database consultant to engagements in which he can earn $120 per hour or more as an SAP specialist. "Whenever there's a pause because of a soft market, I look around and try something new," he says. "I try to get my fingers on as wide a range of products as I can."

Moore and countless other IT professionals who hitch their wagons to hot technology stars are able to thrive by carving out niches as proven experts in the latest "it" tools. They do especially well when a given product is very popular and the people who know how to use it are in short supply — think Hadoop developers or Salesforce.com architects.

Yet despite upsides such as steady work and ample paychecks, there are some inherent risks to that strategy, particularly for people seeking full-time jobs rather than contract gigs and for IT professionals who'd ultimately like to pursue careers in management.

In addition, given the general shift among employers toward an emphasis on hiring IT professionals with a strong understanding of business rather than specific technical skills, employment experts warn that brand specialists could find themselves painted into a corner if they don't balance their domain skills with strategic business knowledge.

"If you brand yourself as a specialist in a specific technology and that's all you know, you'll only address that business need from the perspective of that technology, which isn't always the right answer," says John Reed, senior executive director at Robert Half Technology, an IT staffing firm. "It's really more about the skills you bring to the table. What's secondary is the tools you would use to solve the business problem."

Keeping an Eye on the Trends

Another risk of pursuing a career as a specialist in the fickle, fast-moving world of high-tech is that what's considered hot today can become stone cold tomorrow. "You certainly run the risk of the technology becoming obsolete," says Marshall Oldham, director of recruiting at TEKsystems, an IT staffing, talent management and services provider.

"People need to be smart about how and when they hitch their wagon to one of these brands," Oldham says. "People who do are typically pretty savvy and pay attention to industry trends, so they can proactively seek out skills for the next boom."

Oldham advises would-be brand specialists to do thorough and ongoing reconnaissance on the technology landscape to ensure they align with the brands and vendors that have staying power thanks to the right mix of financial backing and market entrenchment — for example, Salesforce.com, a relative newcomer, and SAP, which has been an enterprise IT mainstay for almost two decades.

Reed advises IT specialists to develop general skills and distance themselves from individual brands when seeking new opportunities, unless they're pursuing specific jobs that emphasize a particular technology. So, for example, a SharePoint specialist should highlight collaboration tool skills on his résumé while someone who has a VMware job title should position himself as a virtualization expert.

"Talk more about your functional expertise and highlight the tool you have experience with," Reed says. "Don't position yourself exclusively with that technology because you can get pigeonholed."

> **People need to be smart about how and when they hitch their wagon to one of these brands.**
>
> **MARSHALL OLDHAM,** DIRECTOR OF RECRUITING, TEKSYSTEMS

To avoid being left on the sidelines with outdated expertise, technologists must keep abreast of industry trends by reading trade journals and attending conferences, and they should invest in ongoing professional development and training, Reed says.

Moore, the SAP expert, is a good case in point. He ponied up $7,000 of his own money for a month's worth of SAP training and ABAP certification when he first started out. And several years ago, he doled out another $20,000-plus on a business intelligence certification — for SAP's Business Information Warehouse — from one of SAP's training centers. "I went that direction because it was kind of a hot area, and I was concerned that ABAP was running its course," he explains.

Moore acknowledges that training is expensive and sometimes hard to accommodate, especially when you're already working full time. "Typically, you can't take a month off for training," he observes. Moreover, he adds, "if you don't use what you learned, it disappears pretty quickly." He also says it's difficult to figure out when the tide is turning on your chosen IT specialty.

For now, Moore remains committed to SAP despite the fact that competitor Salesforce.com's star is rising. "It would be a whole new world for me to move over to Salesforce.com. I'd have to start at the beginning," he

says. "That's not my preference. There will be jobs in SAP for many more years, but they may become more difficult [to find] and probably at lower rates."

Riding a Brand Into the Sunset

Justin Burmeister, who in the late '90s also made a career switch to SAP, from various roles involving Microsoft's Windows NT, says it's possible to pick up new skills on the job. In 1998, when he was in a Windows NT help desk support role, he had an opportunity to work closely with consultants that his employer brought in to implement an SAP system. "My company chose to train me on SAP so I could support the systems," says Burmeister, who is currently associate director of SAP infrastructure at Cheshire, Conn.-based Alexion Pharmaceuticals.

After a six-week knowledge transfer session, Burmeister embarked on years of continuous learning in which he regularly tackled new projects and was called upon to troubleshoot thousands of problems as an SAP Basis specialist — a role he says was similar to his Windows NT jobs in that it focused on root-cause analysis and tuning server performance.

> **Even if [a technology] is considered old, you can still wring more career value out of it.**
>
> **JOSEPH MORGAN,** DATAPOWER ADMINISTRATOR

Burmeister is aware that his deep SAP expertise puts him at risk if SAP's standing in the market erodes, but he says he's not overly concerned. "Companies have eight-, nine-, even 10-figure investments in SAP projects, so they are pretty much married to the technology," he says. "At this point, I'm in pretty deep because it's all I'm qualified to do, but I think I'd get another 10 to 15 years out of it even if the technology does change."

Business Skills Still in Demand

Nick Brattoli was recently promoted in part because of his concentration on Microsoft's SharePoint collaboration software, but he doesn't see that particular domain expertise as a principal driver for career growth over time. Brattoli, whose background is in network engineering, recently changed titles — from SharePoint implementation engineer to SharePoint architect — at Medseek, a Birmingham, Ala.-based provider of patient engagement software. Yet he's focusing on developing business-related skills with an eye toward pursuing a career in IT management.

Brattoli says Medseek values his SharePoint credentials, but what really appealed to the company was his prior experience in healthcare IT. "They liked my technical background, but they liked more that I could do the business side of things," he says. "Being good at SharePoint means I know a bunch of things — how databases and Web pages work, and a lot of encompassing technologies. But it's the 'architect' part of my title that's more important." Now Brattoli is making a point to focus on the problems the business is trying to solve so his skills translate when the time comes to move on, he explains.

High Demand + Low Supply = Top Dollar

Some specialists argue that if they choose the right product, there's no need to worry about latching on to the next great technology, because their skills will remain marketable long after the heyday of the brand.

That was Joseph Morgan's strategy for quite a while. The 31-year IT veteran was able to work for years doing PowerBuilder development long after the Microsoft/Sybase environment lost its luster in the late 1990s. "Even if something is considered old, you can still wring more career value out of it because there are companies invested in the technology who need assistance," he says. "You just need to do the legwork to find the opportunities."

Morgan eventually moved on from PowerBuilder and settled in with a new specialty — IBM's DataPower integration appliance. He was introduced to it in the mid-2000s while working at a company that encouraged him to get trained and certified in DataPower. He was initially reluctant, but he quickly recognized the product's staying power, given its emphasis on security, networking and application development.

With a new specialty under his belt, Morgan has been able to negotiate what he calls "top-dollar salaries" and a variety of other perks, such as reimbursement for relocation expenses.

Because DataPower specialists are in short supply, he has been able to parlay his domain expertise into a unique working situation: He's currently in a full-time DataPower role at Netsmart, a provider of electronic medical records technology, but also makes himself available as needed to the Department of Veterans Affairs as a contract DataPower administrator.

"There are so few people that actually either want to stay with [DataPower] or want to do it that it leaves high demand and low supply for this particular skill set," he says. "That's real good for a career if it's something you want to connect yourself to."

But even from his current perch in the catbird seat, Morgan advises his IT colleagues to expand their skill sets. "Have as many skills as you possibly can, whether it's database technology, old technology or the latest hot technology," he says. "That way, when one thing is not popular, you can do something else." ◆

Stackpole, *a frequent* Computerworld *contributor, has reported on business and technology for more than 20 years.*

Security Manager's Journal

MATHIAS THURMAN

It's Policy-Tweaking Time

No policy, no matter how well crafted, is immune from periodic review. Fall is when our manager tackles that.

EVERY FALL, I conduct a policy review. I think it's a good idea to have this on my calendar, because no policy, no matter how well crafted, is meant to last for all time. New standards arise and old ones are modified, making some policies deficient. Or a security incident, an audit or some business reality that was previously unacknowledged emerges to demonstrate how a policy falls short.

I wouldn't make much progress with this exercise if every policy tweak had to be approved by our policy board (comprising human resources, legal counsel and the CIO). It's just too hard to get all of them in the same room at the same time. When I first came to this company, I needed the policy board to approve my initial policies. I had to bait a conference room with pizza to get everyone together. So we made a deal. I can make incremental modifications without the board's input. I make needed changes, forward the new wording to the board and then wait for their reactions. Usually, I don't hear a peep.

I'm working on several modifications this fall. First up is passwords. We have a fairly high-profile policy for user passwords that covers things like complexity and change frequency. But we have several other password policies that were little noticed because they were buried in other IT documents. I've pulled them out, rewritten them with an eye toward consistency and consolidated them all in a single policy.

Next, I needed to address policies that relate to our expansive embrace of cloud computing. Good-sized chunks of our infrastructure and applications are now hosted, and the prevailing thought is that once they were removed from our premises, they became immune to our DMZ policy. But the infrastructure and applications still face the public and serve our customers. With that thought guiding me, I modified the DMZ policy to make it clear that any resource sitting between the public Internet and our trusted production network must be protected by a firewall and other network security devices, regardless of where that resource physically lives.

Speaking of firewalls, I recently conducted a cursory audit of our firewall rules using a tool called FireMon, uncovering several that aren't utilized. I'm all for security and even more, redundant, security, but security measures that serve no real purpose don't help. So I asked our firewall admin why he didn't remove the unused firewall rules. His answer: We have no policy allowing him to do so. I can help with that! I modified the firewall policy so that the admin must disable any rule that hasn't been triggered in 30 days and then delete the rule after 90 days.

the discussions about security! computerworld.com/blogs/security

> **I wouldn't make much progress if every tweak had to be approved by our policy board.**

Trouble Ticket

- It's time for the annual review of security policies.
- Make any modifications necessitated by changes in technology, business needs and outside threats.

Acceptable Use Rules

The king of all our policies is on acceptable use, since it must be attested to by every employee each year. Like any policy, it's not perfect, so it was due for some tweaks as well. For example, since that policy was last modified, employees have begun using remote-access software to tap into the PC they left at work from their homes, or anywhere else. I have now explicitly restricted the use of such software, which already violated our remote-access requirements for encryption and two-factor authentication.

Of course, sometimes a tweak isn't enough. I did have to create a new policy. This need arose from a recent acquisition, in which we assumed some 30 dedicated point-to-point VPN connections. We've never allowed such things, but they seemed the best way to allow newly acquired offshore workers to access code bases and other R&D sections on our internal network. The acquired company also had no policy, standards or guidelines for such connections, so I created what I called a "partner connectivity policy," specifying rules for them. With an entirely new policy in hand, I guess I'd better order pizza. ◆

This week's journal is written by a real security manager, ***"Mathias Thurman,"*** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

THORNTON A. MAY

Between Mobility's Rock and Hard Place

> IT and the business must create high-value mobile capabilities at the pace of business opportunity.

A HIGH-POTENTIAL MILLENNIAL told the CIO at a big-name pharmaceutical company during her exit interview that she found the work environment toxic. Her main complaint was that the enterprise did not allow use of the modern consumer technologies and applications that she perceives as comprising her personal and professional identity. This is mobility's rock: People want the interface, the ease of use, the "cool" factor, the freedom and the functionality of consumer technology in the workplace.

Recently, about 100 CIOs sat mesmerized as two clean-cut, well-groomed and impressively articulate young men demonstrated an exploit that breached two smartphones (iOS and Android). This is mobility's hard place: Smartphones don't meet enterprise security requirements.

All CIOs today find themselves caught between the two.

I have long contended that the best cyberdefense begins and ends with an educated user, accelerated deployment and empathetic IT action. While infosec can't fix stupid, it can play a major role in eradicating ignorance. At a recent CISO Summit, I bumped into Wombat Security Technologies, a company founded by computer science faculty members at my alma mater, Carnegie Mellon University. Wombat offers an innovative approach to getting time-obsessed executives to better appreciate the implications of bad security behavior.

But what enterprises really need is to turn mobility's rock and hard place into a value quarry. To do that, IT and the business together must create high-value mobile capabilities at the pace of business opportunity. This is not as impossible as it seems, though it does require ending the occupational apartheid that characterizes most large enterprises today. Professionals who know everything there is to know about security, technology deployment, mobile app development and the future needs of future customers must join together in creativity-enhancing ready rooms. There they must conceptualize, design and prototype capabilities designed to delight employees and/or customers.

A must-read for those who seek to understand and benefit from the mobile phenomenon is Adam Greenfield's 2006 book, *Everyware*, which challenged the historical limits of IT's purview — locations inside the enterprise. Greenfield, who went on to be Nokia's head of design direction for user interface and services, said that in the future, information will be delivered in a manner appropriate to our location and context. Every enterprise is a technology company, and every location a potential informated work, play or learning space. (*Informating*, a term coined in 1988 by Harvard Business School professor Shoshana Zuboff, is the process that translates descriptions and measurements of activities, events and objects into information.) The technologies, techniques and applications that make this possible are everyware. But everyware is not just a geographical concept. It has a temporal dimension — every*when* — as well.

In Greenfield's future, we will no longer append automated out-of-office tags to email responses. We will no longer hide bad thinking and spelling behind "Sent from my mobile phone" messages. If you are still breathing, you will be expected to conform to the digital mores of the age. The 7/24, always-on economy means we are always at work, always productive and secure. And out from between a rock and a hard place. ◆

Thornton A. May is author of *The New Know: Innovation Powered by Analytics* and executive director of the IT Leadership Academy at Florida State College in Jacksonville. You can contact him at thorntonamay@aol.com or follow him on Twitter (@deanitla).

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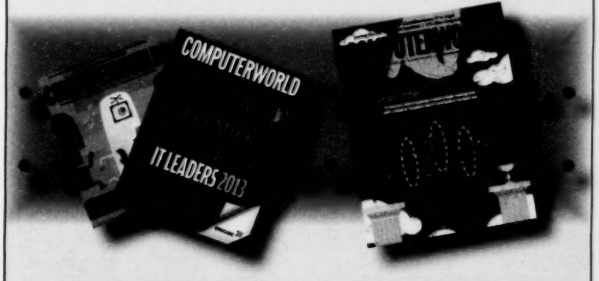

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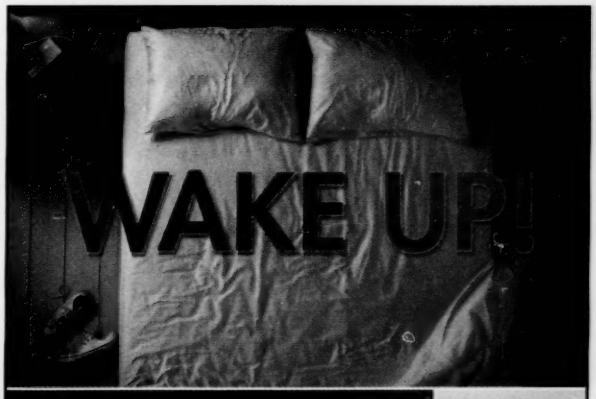

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Catherine P. Bessant

The Global Technology and Operations executive at Bank of America answers questions about **older workers** *and more.*

My own experience and observations tell me that IT workers 50 and older have a harder time finding jobs. Now that I am an older IT worker in need of a job, how can I break through what seems to be a bias toward hiring younger people? Know your audience. What do hiring managers want? They want high-energy, forward-thinking teammates with an obvious desire to grow with the organization. Make a point of projecting those traits. Leaders also want experience, maturity and the self-actualization that tends to come with age. Don't be afraid to talk about those advantages in interviews. Whatever you do, don't project yourself as a fifty-something in desperate need of a job. Remember high school – nobody wants to date someone who desperately needs a date!

If you have a question for one of our Premier 100 IT Leaders, send it to **askaleader@computerworld.com**, and watch for this column each month.

I have a bachelor's degree in computer science and am now planning to get an MBA. My goal is senior-level IT management. Should I pursue a general MBA degree instead of something more focused on MIS? The first CEO I worked for said that if you work for a bank – even if your role is in marketing, human resources or technology – you are a banker. His point was that career advancement depends on expanding acumen beyond technical skills into broader business and management expertise. Our most valued teammates are those who have proved their functional depth, but who also show the desire and ability to understand and lead the business. Given the question, my choice would be to pursue a technical undergraduate degree combined with an MBA that provides a broader management perspective.

I think IT can do a lot more for the business than keep the servers humming, but fellow C-level executives in my company are dismissive. The feeling seems to be that IT is only interested in getting funding for expensive toys. The things I'd like to invest in would provide a great return. How can I better make my case? Earlier in my career I led the communications team for my company. Leaders we supported would come to the team and say things like, "I need to make a video." Our response was, let's start by defining the problem, not choosing a solution. What's the business purpose, audience and message? And what are the available communications tools? Let's answer those questions first, and that will point us in the right direction.

In a similar way, some IT execs suffer from the perception that they start by offering expensive solutions before they've defined the problem. It looks like chasing investment dollars. We need to remember that business leaders don't wake up in the morning thinking about how to spend money. They wake up thinking about how to solve business problems – to attract customers, improve quality, cut costs or reduce risks.

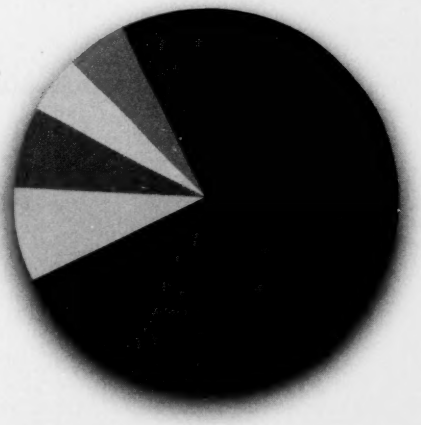
We need to first understand the needs of customers and clients, and then work hand-in-hand with our partners to create solutions to meet those needs. What buys credibility is sharing our business partners' perspective, speaking their language, and crafting solutions for real business issues. We need to present technology investments as a tool to move the business forward, not as a destination itself.

CLARIFICATION: IN-DEMAND LINUX SKILLS

In our Nov. 4 issue, we presented a chart that misinterpreted data from LinuxCareer.com. The data was based on a cluster analysis of skills sought, as determined by specific mentions in job postings. The cluster analysis resulted in 10 groups of skills. **The corrected chart presented here depicts the relative frequency in job postings of combinations of skills from each identified group.**

SOURCE: LINUXCAREERS.COM ANALYSIS OF ROUGHLY 10,000 JOB ADS FROM MAY TO JUNE 2013

- **35%:** MySQL, PHP, Apache, Tomcat, Java, C/C++/C#, Bash, Perl, Python
- **15%:** Red Hat, VMware, Windows, vSphere, ESX/ESXi, XenServer, Citrix, MAS, NetApp, NFS
- **10%:** JavaScript, HTML, CSS, jQuery, Ajax
- **8%:** PL/SQL, RAC, Solaris, AIX, ITIL, SUSE, SAP, DB2, Sybase
- **8%:** JBoss, WebSphere, WebLogic, ANT, Eclipse, SOAP, J2EE, Spring
- **7%:** Ruby on Rails, HTTP, Drupal, PostgreSQL, Android, Embedded, Git, Subversion, Jira, MongoDB, NoSQL
- **5%:** Ubuntu, CentOS, Nagios, EC2, AWS, Chef, Puppet, DevOps
- **5%:** DHCP, DNS, LDAP, SSH, FTP, SMTP
- **4%:** .Net, ASP, PowerShell, Microsoft SQL, Active Directory, IIS
- **3%:** MS cert, VoIP, VPN, Juniper, CISSP



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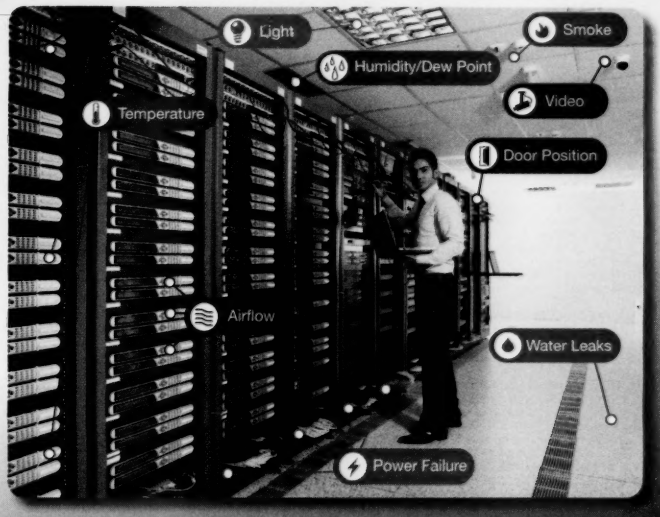

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Hardware Testing Engineer (Mountain View, CA) **#1615.6542**: Design, develop, modify, and/or test hardware needed for various Google projects. Exp incl: test equip; follow test plans or document test procedures; & tech schematics, circuit diagrams, or blueprints; config & troubleshoot of srvr &/or PC hw; Linux or UNIX; TCP/IP protocol suite; funct, stress, & perf test on hw components; & interact directly w/ design engr to report & resolve issues found during test.
Release Engineer (Mountain View, CA) **#1615.5202**: Design, develop, and test technology and processes for build and release management of Google systems. Exp incl: config mgmnt; Python or Perl; Linux shell script; & PHP, MySQL, CSS, Jscript, HTML5, XML, JSON & Apache.
Software Engineer Positions (Mountain View, CA): Design, develop, modify, and/or test software needed for various Google projects. Exp. incl: **#1615.4867**: C, C++, & Java; Python, Perl, & Shell script lang; & image & video domain compression techniques.
#1615.7341: design & dvlpmnt of large sw syst; data struct, algorithms, & complexity analysis; analysis & troubleshoot large-scale distrib syst; large-scale data process & stat analysis; database design & prog using MySQL; & C, C++, Java, Python, &/or Jscript.
#1615.7601: design tools to analyze internal data; Java, HTML, CSS, & Jscript; Mapreduce; multi-thread prog; Linux; AngularJS; Mockito; Junit; & SQL.
#1615.4997: HTML5; CSS 3; C, C++, Java, & Python; Jscript; Linux; multi-core & multithread; UI design & implement; web apps & multi-tiered syst; internationalization; & funct test w/ modern test frmwrks.
#1615.509: design & implement large scale distrib syst; C++; multi-thread prog; & sw eng'g.
#1615.4877: sw production coding; C++; design data & class struct in product srvc sw; write code for, debug, & maintain large-scale, high-reliability product sw srvcs; set theory, graph theory, algebra, & stochastics; prototype algorithm in MATLAB & implement in C++ for product srvc; wireless & mobile communication ntwrks & routing; distributed compute syst & algorithms; web based protocol & info architectures; & app ntwrkng principals & protocols to one field outside of traditional computer science areas. **#1615.1730**: Java; C++; computational stats methods & large scale info process; web techs; SQL & NoSQL; parallel & distrib comput; & mgmnt of priorities, objectives, & schedules for tech proj.

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Product Manager (Mountain View, CA) **#1615.2354** Design, develop, modify, and/or test software needed for various Google projects. Exp incl: design, dvlpmnt, testing, & implement sw apps & syst; proj mgmnt in dvlpng oper syst & sw pltfrms; data analysis; Java; Unix; OOP; tech presentations; algorithm dvlpmnt & implement; & hw & sw integration.
Network Engineer (Mountain View, CA) **#1615.557** Identify issues for Google's networks and determine appropriate solutions. Exp include: ISP dvlpmnt of residential & bus IP ntwrk infrastruct & srvc; IP-MPLS arch & ntwrk srvic design using protocols & tech; IPv6 protocols & transition; residential access & subscriber mgmnt arch or design for fixed broadband; multicast delivery of IPTV; & bldg & oper of large, complex ntwrks & srvcs.
Software Engineer Positions (Mountain View, CA): Design, develop, modify, and/or test software needed for various Google projects. Exp. incl: **#1615.3776**: Java or C++; multi-thread prog; design large-scale distrib syst; MapReduce; & end-to-end dvlpmnt of sw.
#1615.3982: C, C++, or Java; Python, Perl, Shell, or PHP; data struct, algorithms, & complexity analysis; analysis & troubleshoot of large-scale distrib syst; high-vol or critical prod srvc environ; & TCP/IP ntwrkng, ntwrk analysis, & performance & app issues using standard tools.
#1615.4526: syst sw dvlpmnt; C++; Python or similar open source dynamic lang proj; & active contributor to the GCC or LLVM proj.
#1615.7898: mgmnt of entire lifecycle of app backend srvcs &/or web app frontends; implement syst in OOL; & app & implement mach learn algorithms in data collection & sw dvlpmnt.
#1615.765: native app dvlpmnt on a mobile pltfrm; data struct, algorithms, & sw design; bldg frmwrks & tools for dvlprs; & UI frmwrks, MVP app design, & complex, reactive touch based UI.
#1615.7292: C#, C++, &/or Java; Python, Go, &/or Shell; Oracle, Sybase, &/or MySQL; NoSQL; multi-thread; low latency syst; distrib syst; version control syst; srvr client arch; & Linux.
#1615.4539: design of large scale distrib syst for high vol traffic; design of fault tolerance & recovery methods for distrib syst; prob & perf analysis of large scale distrib syst; C++ & STL; multithread prog; OO syst design & dvlpmnt; & data struct, algorithms, & complexity analysis.

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Network Engineer (NY, NY) **#1615.6126**: Design, develop, and operate Google corporate voice network and related services. Exp incl: IP ntwrkng; cloud syst concepts; dplyng & oper enterprise-scale infrastruct & syst; script or code in Python, C++, or Java; source code mgmnt; configure, deploy & maintain Avaya CM PBX infrastruct; & troubleshoot of VoIP & PRI circuits.
Corporate Operations Engineer (NY, NY) **#1615.2366** Design, develop, and support Google's information technology architecture. Exp incl: mobile hw & cell communications; mobile pltfrms; corp MDM; mobile & desktop app dvlpmnt; Android design & dvlpmnt; & Python & App Engine.
Software Engineer positions (NY, NY); Design, develop, modify, and/or test software needed for various Google projects. Exp incl: **#1615.660** Java or Linux; OOD; web srvcs & app srvrs; database design & SQL; large-scale data process; parallel & distrib computing; design & dvlpmnt of large-scale distrib syst; perf analysis of large-scale distrib syst; & GWT, HTML, XML, CSS, Jscript, or shell script.
#1615.2042 distrib syst; event process at scale; C++ & Python; & MapReduce prog.

Interested candidates send resume to: Google Inc., PO Box 26184 San Francisco, CA 94126 Attn: D. Racherla. Please reference job # below:
Software Engineer Positions (Kirkland, WA) Design, develop, modify, and/or test software needed for various Google projects. Exp incl:
#1615.6537 OOL; dvlpmnt of APIs & end-user apps using offline tech; data struct & algorithms; sw design & dvlpmnt of large syst.
#1615.5548 algorithm dvlpmnt; HTML; web-related protocols & specs using Java or other OOL; Java, C++, &/or other OOL; web srvcs & apps srvrs; distrib file database syst; prob & perfonnance analysis of large-scale distrib syst; fault tolerance & recovery methods for distrib syst; & scientific analysis & mach learn to analyze data & identify patterns & correlations.
#1615.7367: C & C++; algorithms for optimizing perf; cache optimized data struct; TCP/IP ntwrkng on Windows or Unix based oper syst; ntwrkng topologies, components, & standards; & ntwrkng stack.
#1615.1129 syst lvl prog of Windows, Mac OS X, & Linux syst; distrib syst design; design of secure syst & protocols; & lead eng'g teams in dvlpmnt of sw prod.

Interested candidates send resume to: Google Inc., PO Box 26184 San Francisco, CA 94126 attn: D. Racherla. Please reference job # below:
Software Engineer Positions (Venice, CA); Design, develop, modify, and/or test software needed for various Google projects. Exp incl:
#1615.7436: C++ & Python; SQL; Parallel & distrib sys program; data struct; & advanced algorithms.
#1615.2475 Unix &/or Linux; large-scale syst design; Python, Jscript, AJAX, C, C++, &/or Java; data struct, algorithms, & sw design; & lead of a sw dvlpmnt team.
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IT Corp., Aliso Viejo (Orange County), CA. has multiple openings at various levels for Systems Analysts - General; Java; Microsoft and Mainframe. Will collect, review, analyze and recommend technology and tools; Use independent judgment and discretion to analyze computer system capabilities; Knowledge and hands on exp. of Software Development life cycle. Exp in† Global Delivery model. Excellent communication skills, able to communicate complex technical concepts to all levels. Excellent analytical and problem solving skills. Travel and/or relocate to unanticipated client sites throughout the US required. Bachelor's Degree with 2 yrs. of experience. Mail resume & position desired to Job Number: 004RAUST - Attn: Coleen Ryan-UST Global Inc. 20 Enterprise 4th Floor, Aliso Viejo, CA 92656

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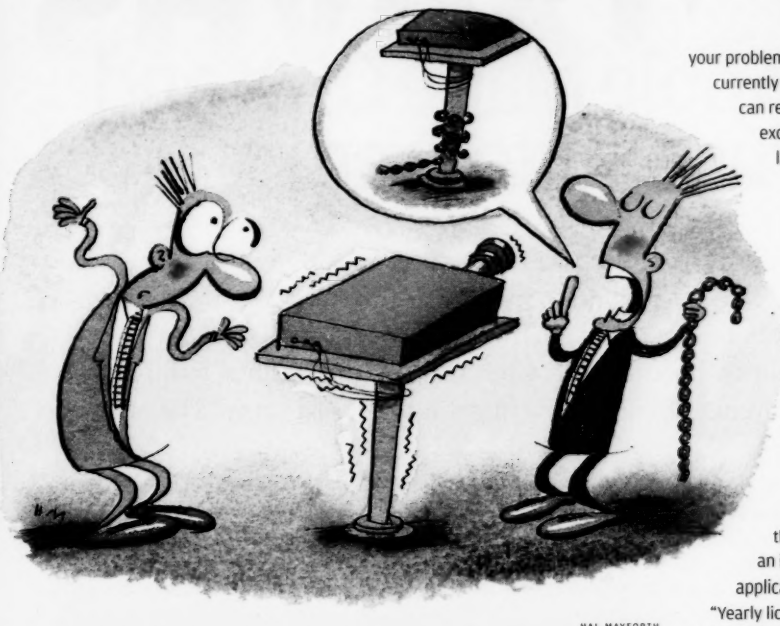

HAL MAYFORTH

In IT, We Prefer to Use Duct Tape

The school district where this pilot fish works has two groups of techs: the computer techs, who work on PCs and mobile, and the multimedia techs, who work on smart whiteboards and other "interactive media." "I'm a field tech who works on the computers and mobile devices," fish says. "I was stopped by an end user because his smart whiteboard lost connection to the computer. I took a look. The range is *waaay* too long for the USB connector to have a reliable connection. But I also saw a length of chain wrapped around the post to the projector. I asked what the deal was. User said the projector vibrated when the heating or air conditioning kicked on. And that's how the multimedia techs solved the problem!"

Of Course, It'll Look a Little Different Later

This pilot fish gets a contract to perform a site survey for a fast-food chain. "It was just the usual – walk around and take pictures in preparation for a new system install," says fish. "About an hour before I was supposed to arrive on site, I got a call from my contact. She was unable to get ahold of the store manager to tell him I was coming over – every time she called, the phone rang once and disconnected. She assured me there would be no issue. I should just show the manager the work order, and he'd let me in. Once I got there, I called her back. 'I think I've found your problem,' I said. 'The building's currently demolished so they can remodel it. There's an excavator removing the last of the concrete right now. Do you still want me to take those pictures?' "

If It Ain't Broke ...

Not-for-profit organization brings in a new CIO whose first order of business is to streamline IT and cut costs. "Among other things, the new CIO got rid of an in-house help desk application," fish says. "Yearly license fee for it was probably $50,000 to $60,000. It was a bit buggy, but it worked; it was fast and it had been working for many years." The replacement: a modern hosted solution costing $1.5 million a year. There will be a "gradual switchover" (translation: it will take forever), lots of customization to fill in some holes in the hosted solution's functionality, and data that has to be imported piecemeal. But after months of getting the new system mostly stabilized, there's just one remaining problem: Users can't log in. "Did we save money? Probably not," says fish. "Does the new solution work better? Maybe, except for the login problem. Did someone make a good commission? Definitely maybe!"

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OPINION

SCOT FINNIE

Why Apple Made OS X and Its Office Suite Free

TUCKED IN among Apple's hardware debuts last month was the announcement that the company would stop charging for its OS X and iWork office-suite software. Why is Apple willing to forgo this small revenue stream? How might it affect IT buyers? The move is an interesting one on several fronts.

> Over the past couple of years, Apple has gotten cozier with the enterprise.

The first thought has to be that Apple's move is an outgrowth of the strong trend toward free software in the burgeoning mobile market — after all, iOS has been free for a long time. What's more, Apple clearly wants its iWork apps for both OS X and iOS to be in one code base, with identical feature sets. That lets Apple devote fewer software engineering resources to the iWork effort.

As for the Mac operating system, free means faster user adoption, which in turn spurs app development for the newest versions of the software. According to Net Applications, 11% of all Macs were already running OS X 10.9 Mavericks by the end of October. *Computerworld*'s Gregg Keizer notes that that's the fastest start of any OS X upgrade.

But Apple also has a competitive reason for these moves. Specifically, it wants to keep blowing Microsoft's doors off on mobile market share. The maker of the iPod, iPhone, iPad and Mac is trying to disrupt Microsoft's business model. At first, I wasn't sure this was really happening, but the preponderance of evidence shows that it is.

Apple is framing its market position and value proposition for both i-devices and the Mac against those of Microsoft and Google. Not only is Apple not going to lease its iWork mobile and desktop suite of business applications for $100 a year, it's offering them for free, just like Google. "Free" makes the iWork apps more attractive than they might otherwise be in a comparison with Microsoft's Office. And in a side-by-side comparison, the equally free Google Docs apps look like toys.

Of course, despite my focus so far on software, Apple primarily thinks of itself as a hardware vendor. And, given its margins on hardware, why shouldn't it? So why did Apple also announce price cuts on some of its most popular Mac hardware products? Over the course of 2013, Apple has reduced the average selling price of Mac computers by about $150. The addition of free business-oriented software heightens the perceived value of those computers, which may be a bid toward increased market share.

Over the past couple of years, Apple has gotten cozier with the enterprise. The iPhone and the BYOD movement have made for a much stronger Apple presence in corporations. But the total cost of ownership (TCO) has remained the big barrier to enterprise entry for the Mac. When Apple simultaneously lowers hardware prices, bundles free business applications and offers free OS updates, the result is decreased TCO for the Macintosh — and decreased TCO potentially makes Macs more attractive to IT buyers.

Still, for Apple to truly benefit from its decision to eliminate the charge for iWork, it needs its office suite to offer something closer to the rich functionality of Office 365. Instead, the new free OS X version takes a serious step back because of the reduction of features required to sync with the iOS iWork code base. Apple needs to return those features to users. (Indeed, the company recently announced that it would return some of them.) In particular, Pages needs to be able to save to RTF format. Apple does have an honest chance to gain a foothold in office-suite market share. But simplicity doesn't sell with this type of software. ◆

Scot Finnie is *Computerworld*'s editor in chief. You can contact him at sfinnie@computerworld.com and follow him on Twitter (@ScotFinnie).

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Business Operations Per Second Unparalleled Cisco Server Performance[1]

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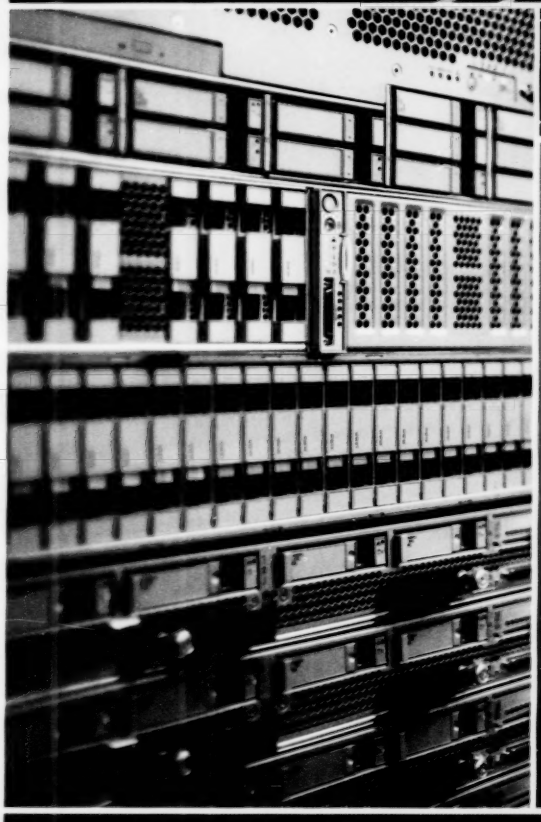

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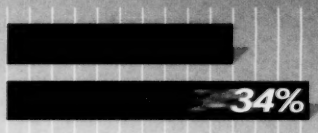

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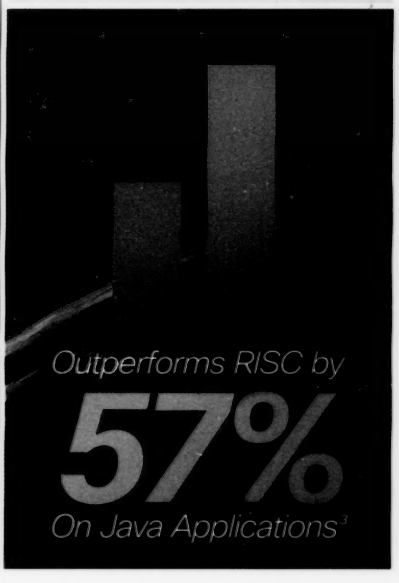

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1. Based on SPECjbb2005 benchmark on Cisco UCS C220 M3 server at 1,584,567 BOPS, 792,284 BOPS/JVM. 2. Based on TPC Benchmark C Results on 2 Processor Systems. Cisco UCS C240 M3 High-Density Rack Server with Oracle Database 11g Release 2 Standard Edition One, 1,609,186.39 tpmC, $0.47/tpmC, available 9/27/12 compared to IBM Power 780 Server Model 9179-MHB with IBM DB2 9.5, 1,200,011.00 tpmC, $0.69/tpmC, available 10/13/10. 3. Based on SPECjEnterprise2010 benchmark with 8 total Java EE Server processors on Cisco UCS B440 M2 servers at 26,118.67 EjOPS compared to RISC-based IBM Power 780 at 16,646.34 EjOPS. SPEC®, SPECjbb®, and SPECjEnterprise® are registered trademarks of Standard Performance Evaluation Corporation. TPC Benchmark C® is a trademark of the Transaction Performance Processing Council (TPC). The performance results described here are derived from detailed benchmark results available at http://www.spec.org and http://www.tpc.org as of 1-15-2013. *©2013 Cisco and/or its affiliates. All rights reserved. All third-party products belong to the companies that own them. Cisco, the Cisco logo, and Cisco UCS are trademarks or registered trademarks of Cisco. Intel, the Intel logo, Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation in the U.S. and/or other countries. All other trademarks are the property of their respective owners.*